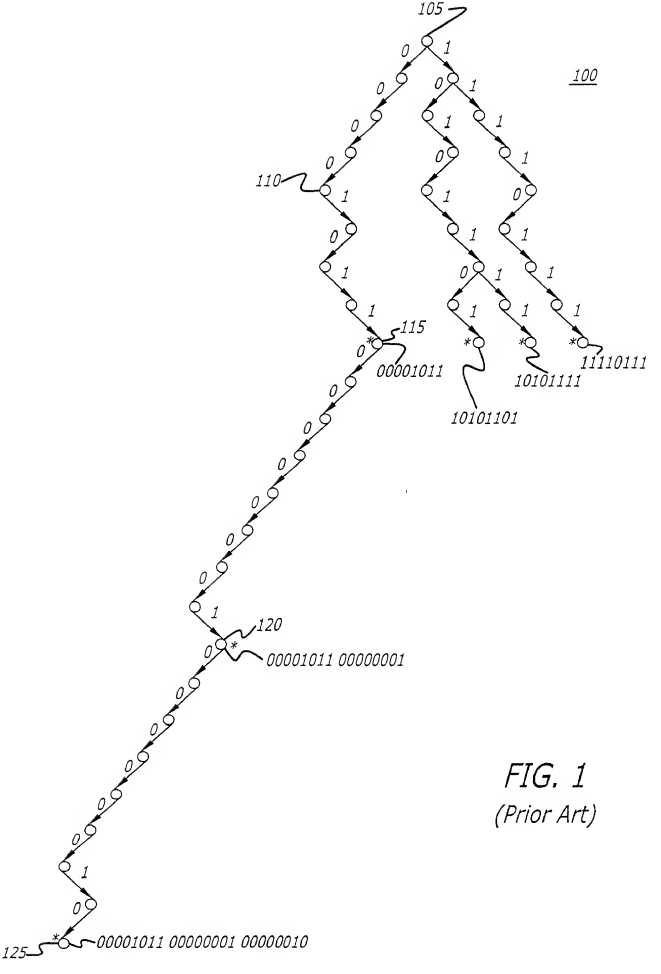
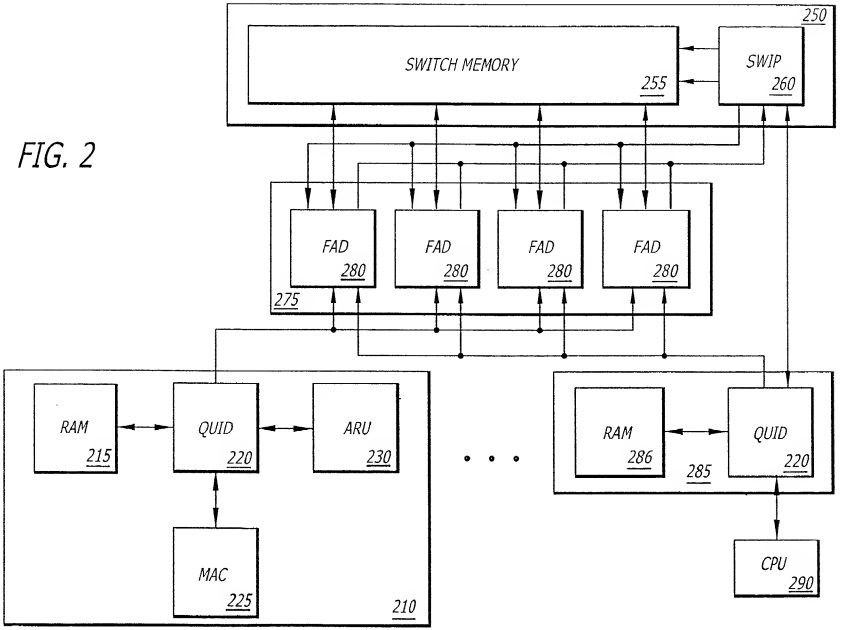


FIG. 1
(Prior Art)

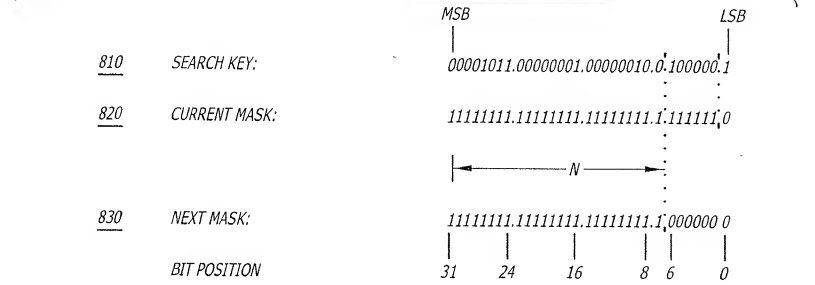
TOP 20 80226560

FIG. 2



310	DESTINATION ADDRESS:	11.1.2.65	00001011.00000001.00000010.01000001
320	ROUTE #1	11.1.2.0/24	00001011.00000001.00000010 .00000000
330	ROUTE #2	11.1.0.0/16	00001011.00000001 .00000000.00000000
340	ROUTE #3	11.0.0.0/8	00001011 .00000000.00000000.00000000

FIG. 8



1001.25 SVL.22.0611

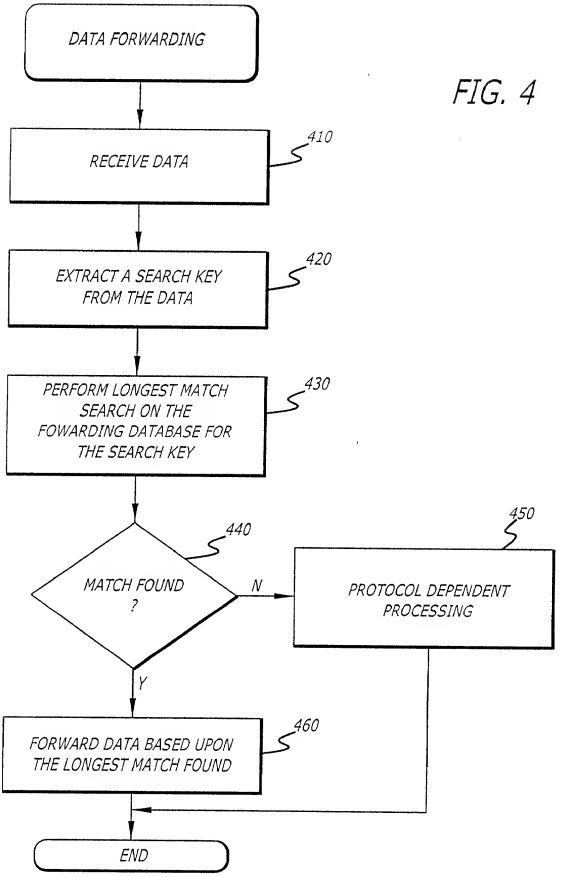


FIG. 4

TOUT20" 80282860

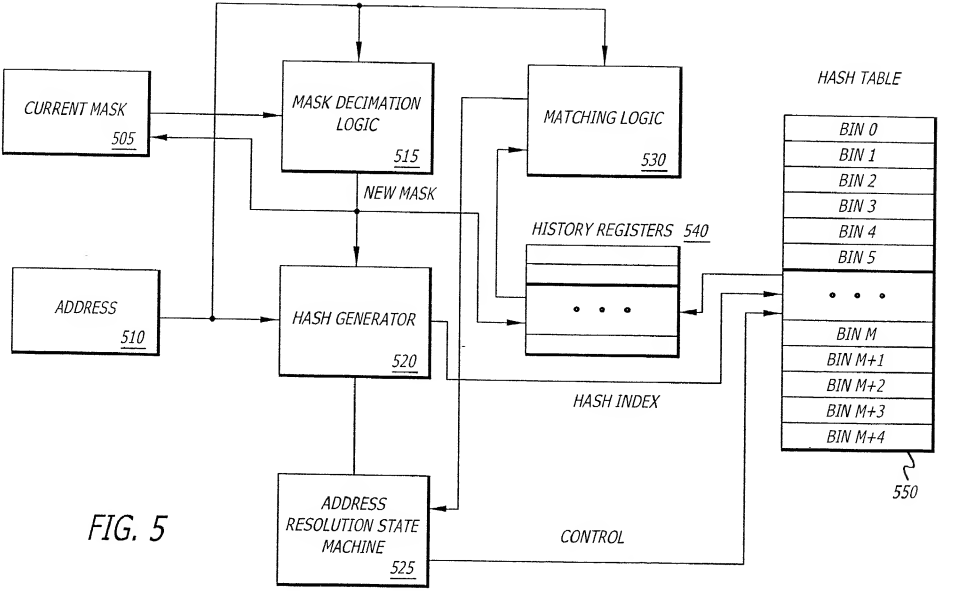


FIG. 5

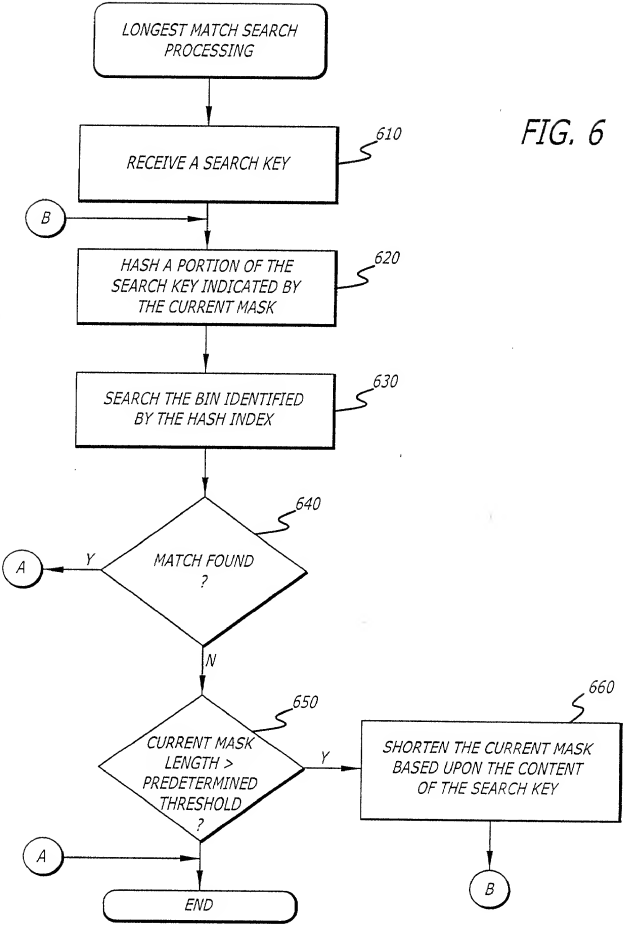

LONGEST MATCH SEARCH PROCESSING
RECEIVE A SEARCH KEY
610
B
HASH A PORTION OF THE SEARCH KEY INDICATED BY THE CURRENT MASK
620
SEARCH THE BIN IDENTIFIED BY THE HASH INDEX
630
MATCH FOUND ?
640
A
Y
N
CURRENT MASK LENGTH > PREDETERMINED THRESHOLD ?
650
Y
SHORTEN THE CURRENT MASK BASED UPON THE CONTENT OF THE SEARCH KEY
660
A
B
END

FIG. 6

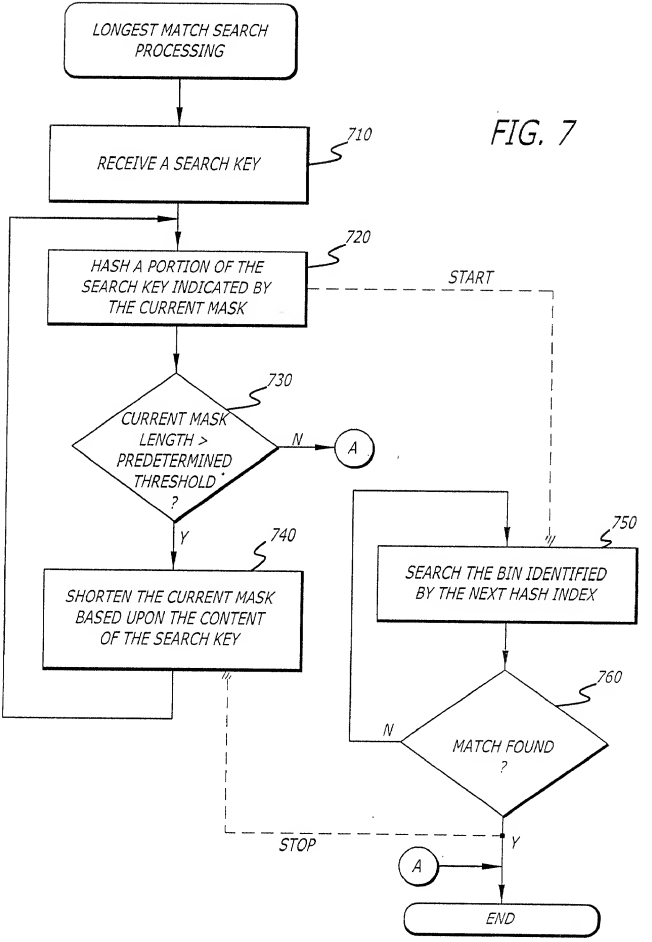

LONGEST MATCH SEARCH PROCESSING
RECEIVE A SEARCH KEY
710
HASH A PORTION OF THE SEARCH KEY INDICATED BY THE CURRENT MASK
720
START
CURRENT MASK LENGTH > PREDETERMINED THRESHOLD ?
730
N
A
Y
SHORTEN THE CURRENT MASK BASED UPON THE CONTENT OF THE SEARCH KEY
740
SEARCH THE BIN IDENTIFIED BY THE NEXT HASH INDEX
750
MATCH FOUND ?
760
N
Y
STOP
A
END

FIG. 7

BIT-WISE MASK DECIMATION

ADDRESS (HEX)	ITERATION	MASK (HEX)	MASKED ADDRESS (HEX)	
0B 01 02 41	1	FF FF FF FF	0B 01 02 41	
	2	FF FF FF FE	0B 01 02 40	
	3	FF FF FF FC	0B 01 02 40	
	4	FF FF FF F8	0B 01 02 40	
	5	FF FF FF F0	0B 01 02 40	
	6	FF FF FF E0	0B 01 02 40	
	7	FF FF FF C0	0B 01 02 40	
	8	FF FF FF 80	0B 01 02 00	← MATCH

310

FIG. 9

ADDRESS-SENSITIVE MASK DECIMATION

ADDRESS (HEX)	ITERATION	MASK (HEX)	MASKED ADDRESS (HEX)	
0B 01 02 41	1	FF FF FF FF	0B 01 02 41	
	2	FF FF FF FE	0B 01 02 40	
	3	FF FF FF 80	0B 01 02 00	← MATCH
	4	FF FF 00 00	0B 01 00 00	
	5	FF 00 00 00	0B 00 00 00	

310

FIG. 10

FIG. 11A (Prior Art)

ADDRESS	• • •	MASK	
00011000 00010000 00000010 00000000		11111111 11111111 11111111 00000000	1110
00011000 00010000 00000000 00000000		11111111 11111111 00000000 00000000	1115
• • •			
00011000 00000000 00000000 00000000		11111111 00000000 00000000 00000000	1120

FIG. 11A (Prior Art)

ADDRESS	• • •	MASK LENGTH	
00011000 00010000 00000010 00000000		11000	1125
00011000 00010000 00000000 00000000		01000	1130
• • •			
00011000 00000000 00000000 00000000		00100	1135

FIG. 11B (Prior Art)

ADDRESS + MASK INFORMATION	• • •	
00011000 00010000 00000010 10000000 0		1140
00011000 00010000 10000000 00000000 0		1145
• • •		
00011000 10000000 00000000 00000000 0		1150

FIG. 11C